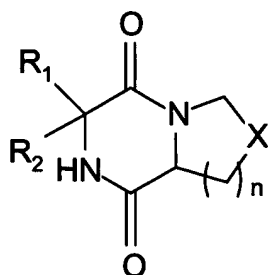


IN THE CLAIMS:

The following is a listing of the latest version of the claims. This listing replaces all prior listings thereof.

1-11. (Canceled)

12. (Currently Amended) A method of providing neuroprotection to a subject comprising administering to a subject in need of such treatment an effective amount of a compound having the formula:



or a pharmaceutically acceptable salt or hydrate thereof, wherein:

n is an integer from 0 to 3;

X is selected from the group consisting of -S-, -O-, -NR- and CH₂-;

R₁ and R₂ are each independently selected from the group consisting of -H, -OR, -SR, -NRR, -NO₂, CN, -C(O)OR, -C(O)NRR, -C(NR)NRR, trihalomethyl, halogen, (C₁-C₆) alkyl, substituted (C₁-C₆) alkyl, (C₂-C₆) alkenyl, substituted (C₂-C₆) (C₂-C₆) alkenyl, (C₂-C₆) alkynyl, substituted (C₂-C₆) alkynyl, (C₅-C₂₀) aryl, substituted (C₅-C₂₀) aryl, 5-20 membered heteroaryl, substituted 5-20 membered heteroaryl, (C₆-C₂₆) alkaryl, substituted (C₆-C₂₆) alkaryl, 6-26 membered alk-heteroaryl and substituted 6-26 membered alk-heteroaryl,

or R₁ and R₂ taken together are -CH₂-(CH₂)_m-CH₂-, where m is an integer from 0 to 6;

each alkyl, alkenyl, alkynyl, aryl, alkaryl, heteroaryl or alk-heteroaryl substituent is independently selected from the group consisting of -OR, -SR, -NRR, -CN, -NO₂, -C(O)OR, -C(O)NRR, -C(S)NRR, -C(NR)NRR, halogen and trihalomethyl; and

each is R independently selected from the group consisting of -H, (C₁-C₆) alkyl, (C₂-C₆) alkenyl, (C₂-C₆) alkynyl, (C₅-C₂₀) aryl, 5-20 membered heteroaryl, (C₆-C₂₆) alkaryl and 6-26 membered alk-heteroaryl.

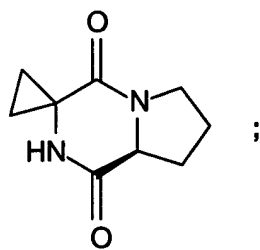
13. (Previously Presented) The method of Claim 12, wherein the subject has a neurological disorder, a neurodegenerative disease or a CNS injury.

14. (Original) The method of Claim 12, wherein both carbons at positions 3 and 6 of the parent bicyclic 2,5-diketopiperazine ring are in the S configuration.

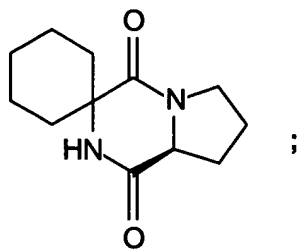
15. (Original) The method of Claim 12, wherein X is -CH₂-.

16. (Original) The method of Claim 12, wherein n is 1.

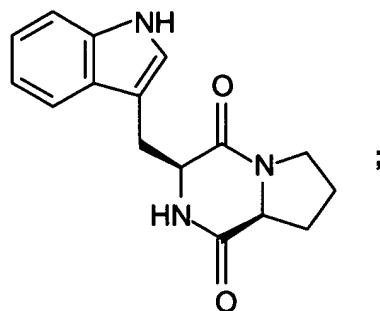
17. (Original) The method of Claim 12, wherein said compound is selected from a group consisting of:



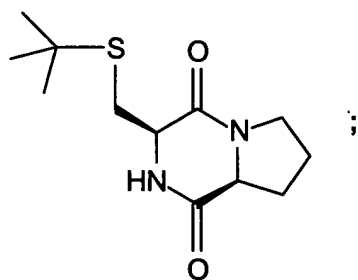
(1a)



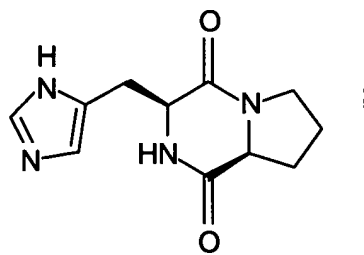
(2a)



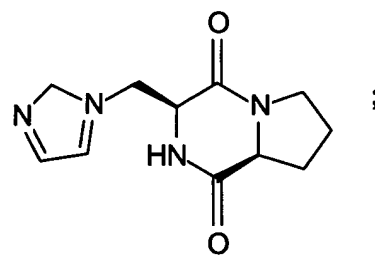
(3a)



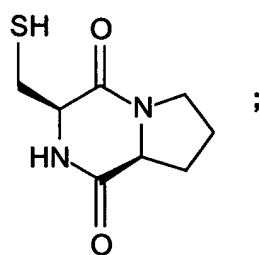
(4a)



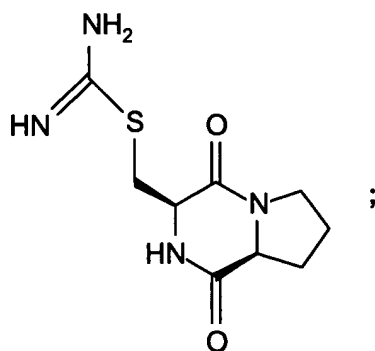
(5a)



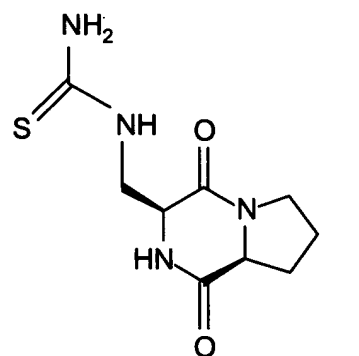
(6a)



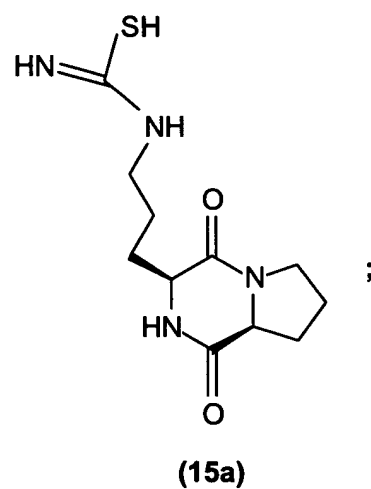
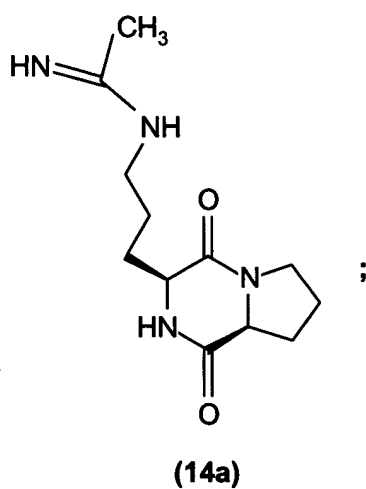
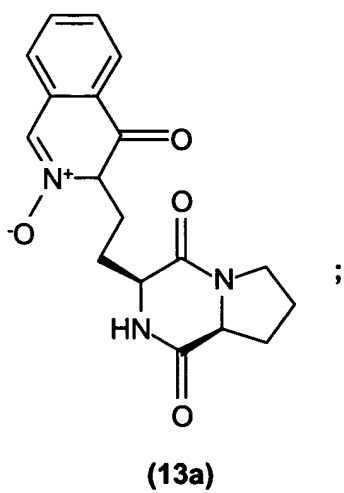
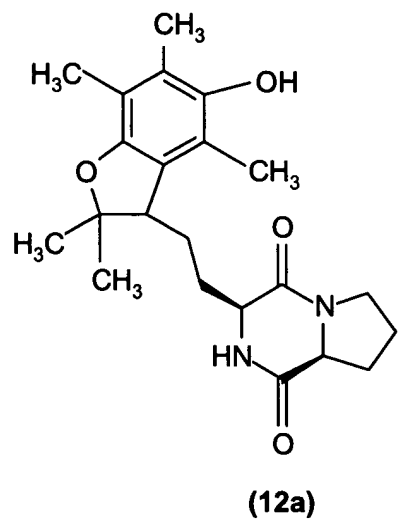
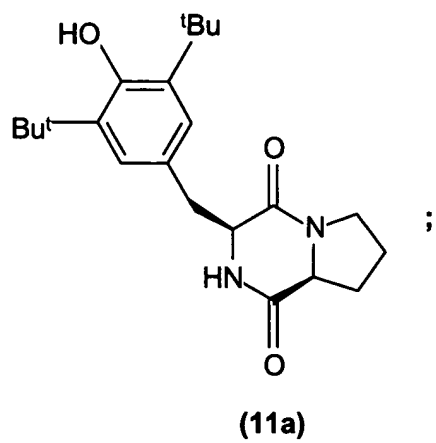
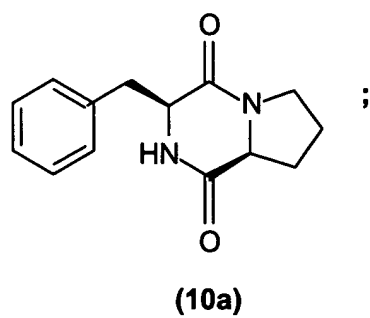
(7a)

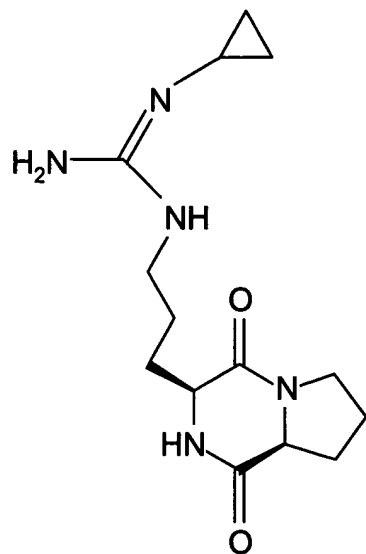


(8a)



(9a)

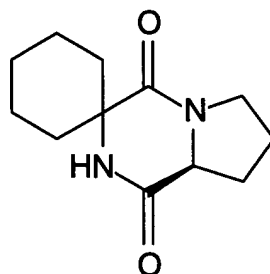




(16a)

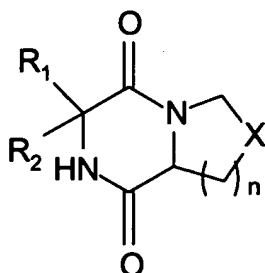
18-20. (Canceled)

21. (Original) The method of Claim 12 in which said compound has the following structure:



22. (Previously Presented) The method of Claim 13 in which the neurological disorder is caused by brain or spinal cord trauma.

23. (Original) A method of enhancing cognitive function, said method comprising the step of administering to a subject an effective amount of a compound having the formula:



or a pharmaceutically acceptable salt or hydrate thereof, wherein:

n is an integer from 0 to 3;

X is selected from the group consisting of -S-, -O-, -NR- and -CH₂-;

R₁ and R₂ are each independently selected from the group consisting of -H, -OR, -SR, -NRR, -NO₂, -CN, -C(O)OR, -C(O)NRR, -C(NR)NRR, trihalomethyl, halogen, (C₁-C₆) alkyl, substituted (C₁-C₆) alkyl, (C₂-C₆) alkenyl, substituted (C₂-C₆) alkenyl, (C₂-C₆) alkynyl, substituted (C₂-C₆) alkynyl, (C₅-C₂₀) aryl, substituted (C₅-C₂₀) aryl, 5-20 membered heteroaryl, substituted 5-20 membered heteroaryl, (C₆-C₂₆) alkaryl, substituted (C₆-C₂₆) alkaryl, 6-26 membered alk-heteroaryl and substituted 6-26 membered alk-heteroaryl,

or R₁ and R₂ taken together are -CH₂-(CH₂)_m-CH₂-, where m is an integer from 0 to 6;

each alkyl, alkenyl, alkynyl, aryl, alkaryl, heteroaryl or alk-heteroaryl substituent is independently selected from the group consisting of -OR, -SR, -NRR, -CN, -NO₂, -C(O)OR, -C(O)NRR, -C(S)NRR, -C(NR)NRR, halogen and trihalomethyl; and

each R is independently selected from the group consisting of -H, (C₁-C₆) alkyl, (C₂-C₆) alkenyl, (C₂-C₆) alkynyl, (C₅-C₂₀) aryl, 5-20 membered heteroaryl, (C₆-C₂₆) alkaryl and 6-26 membered alk-heteroaryl.

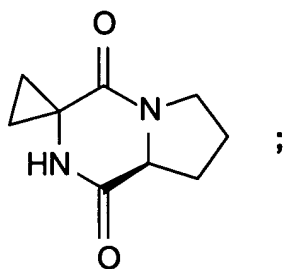
24. (Original) The method of Claim 23, wherein the cognitive function is memory.

25. (Original) The method of Claim 23, wherein both carbons at positions 3 and 6 of the parent bicyclic 2,5-diketopiperazine ring are in the S configuration.

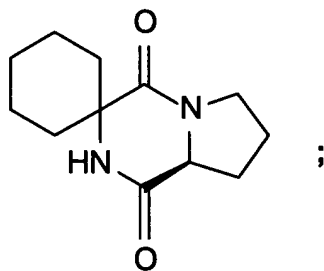
26. (Original) The method of Claim 23, wherein X is -CH₂-.

27. (Original) The method of Claim 23, wherein n is 1.

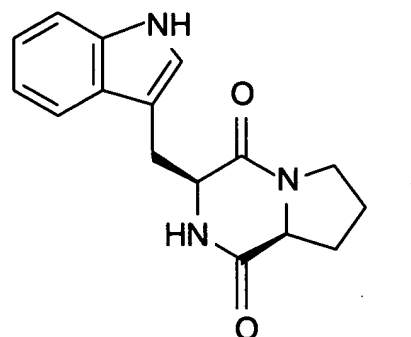
28. (Original) The method of Claim 23, wherein said compound is selected from the group consisting of:



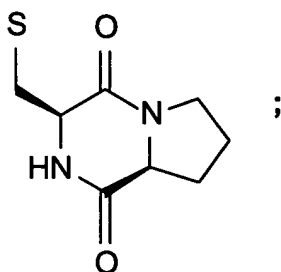
(1a)



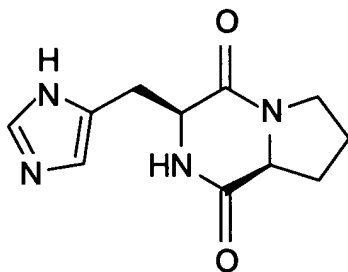
(2a)



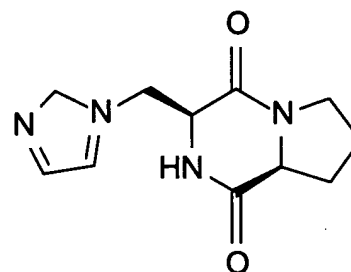
(3a)



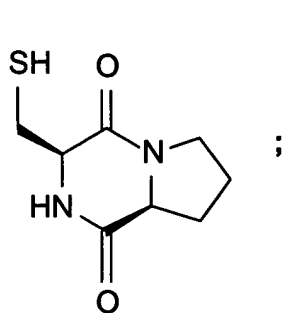
(4a)



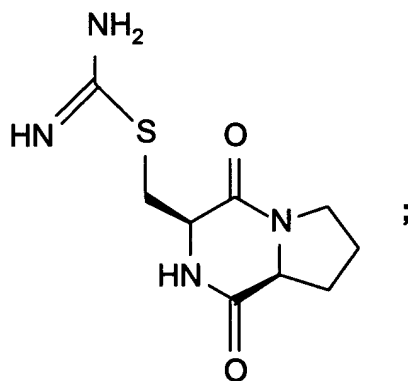
(5a)



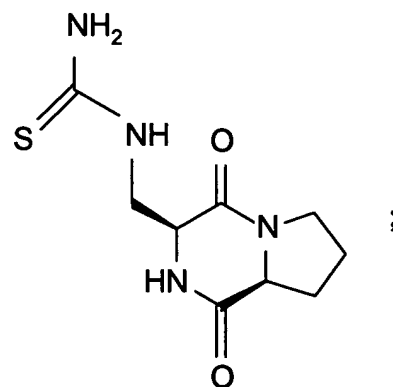
(6a)



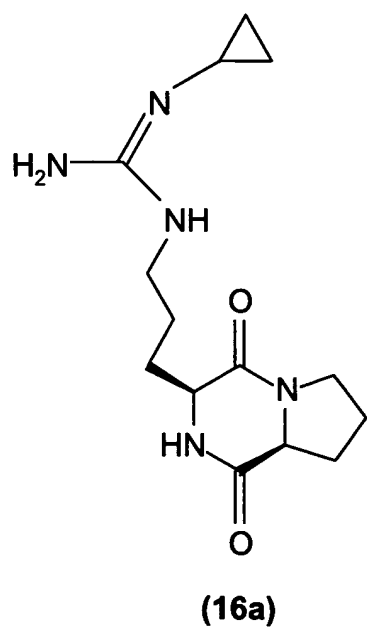
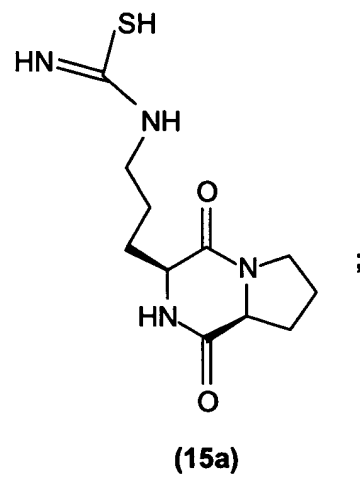
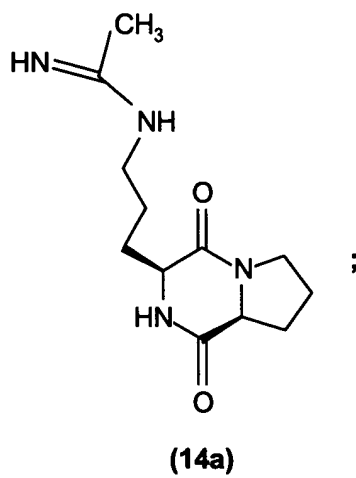
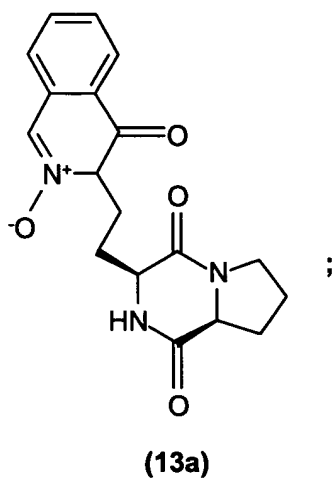
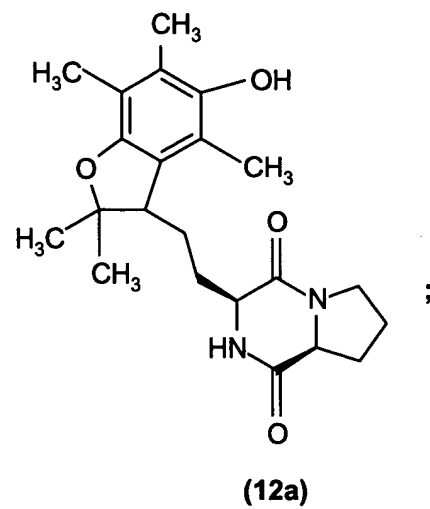
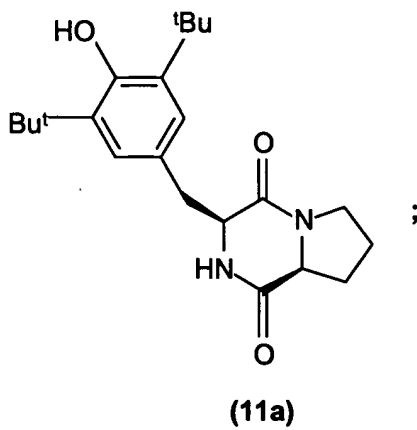
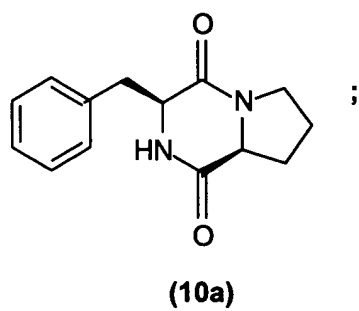
(7a)



(8a)



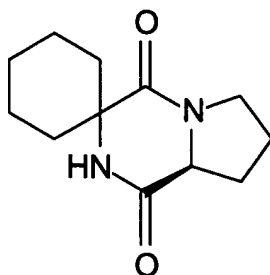
(9a)



29. (Canceled)

30. (Canceled)

31. (Original) The method of Claim 23 in which said compound has the following structure:



32. (Original) The method of Claim 23, wherein said compound is administered following acute or chronic brain injury.

33-72. (Canceled)

73. (Previously Presented) The method of Claim 13 in which the CNS injury is caused by stroke.

74. (Previously Presented) The method of Claim 12, wherein R_1 is H.

75. (Currently Amended) The method of Claim 74, wherein n is an integer from 1 to 3;

X is $-S-$, $-O-$, $-NH-$ or $-CH_2-$;

R_2 is $-CH_2-R_5$, $-CH_2-R_5$ or $-CH_2-CH_2-CH_2-R_5$;

R_5 is phenyl, imidazolyl other than imidazol-2-yl, indolyl other than indol-3-yl, -

SR_6 , $-OR_6$ or $-NHR_6$; and

R_6 is $-H$, (C_1-C_6) alkyl (preferably t -butyl), (C_2-C_6) alkenyl, (C_2-C_6) alkynyl, -

$C(NH)NH_2$ or $-C(S)NH_2$.

76. (Previously Presented) The method of Claim 74, wherein n is an integer from 1 to 3;

X is $-S-$, $-O-$, $-NH-$ or $-CH_2-$;

R_2 is $-H$, (C_1-C_6) alkyl, (C_2-C_6) alkenyl, (C_2-C_6) alkynyl or $-(CH_2)_g-CH_2-R_7$;

g is an integer from 0 to 5;

R₇ is -OR₈, -SR₈, -NR₈R₈, -CH(OR₈)-CH₃, -C(O)R₈, -C(O)OR₈, -C(O)NR₈R₈, -S-C(NH)NH₂, -NH-C(NH)NH₂, -NH-C(S)NH₂, phenyl, hydroxyphenyl, imidazolyl, indolyl; and

R₈ is -H, (C₁-C₆) alkyl, (C₂-C₆) alkenyl, (C₂-C₆) alkynyl.

77. (Previously Presented) The method of Claim 74, wherein n is an integer from 1 to 3;

X is -S-, -O-, -NH- or -CH₂-; and

R₁ and R₂ taken together are -CH₂-(CH₂)_b-where b is an integer from 0 to 6.

78. (Previously Presented) The method of Claim 23, wherein R₁ is H.

79. (Currently Amended) The method of Claim 78, wherein n is an integer from 1 to 3;

X is -S-, -O-, -NH- or -CH₂-;

R₂ is -CH₂-R₅, -CH₂-CH₂-R₅ or -CH₂-CH₂-CH₂-R₅;

R₅ is phenyl, imidazolyl other than imidazol-2-yl, indolyl other than indol-3-yl, -SR₆, -OR₆ or -NHR₆; and

R₆ is -H, (C₁-C₆) alkyl (~~preferably t-butyl~~), (C₂-C₆) alkynyl or -(CH₂)_g-CH₂-R₇.

80. (Previously Presented) The method of Claim 78, wherein n is an integer from 1 to 3;

X is -S-, -O-, -NH- or -CH₂-;

R₂ is -H, (C₁-C₆) alkyl, (C₂-C₆) alkenyl, (C₂-C₆) alkynyl or -(CH₂)_g-CH₂-R₇;

g is an integer from 0 to 5;

R₇ is -OR₈, SR₈, -NR₈, -NR₈R₈, -CH(OR₈)-CH₃, -C(O)R₈, -C(O)OR₈, -C(O)NR₈R₈, -S-C(NH)NH₂, -NH-C(NH)NH₂, -NH-C(S)NH₂, phenyl, hydroxyphenyl, imidazolyl, indolyl; and

R₈ is -H-, (C₁-C₆) alkyl, (C₂-C₆) alkenyl, (C₂-C₆) alkynyl.

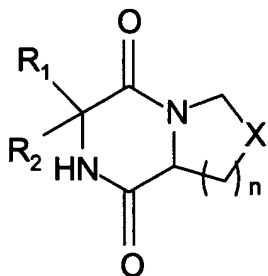
81. (Previously Presented) The method of Claim 78, wherein n is an integer from 1 to 3;

X is -S-, -O-, -NH- or -CH₂-; and

R₁ and R₂ taken together are -CH₂-(CH₂)_b-CH₂-, where b is an integer from 0 to

6.

82. (New) The method of Claim 12 wherein said compound has the formula:



wherein

X is -CH₂-;

n is 1;

R₁ is H;

R₂ is (CH₂)_q R₁₈,

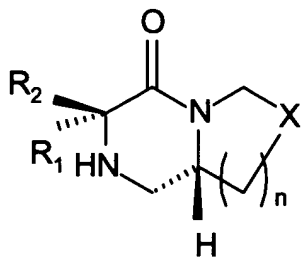
q is 0, 1, 2, 3 or 4; and

R₁₈ is di-*t*-butylhydroxyphenyl.

83. (New) The method of Claim 82 wherein R₁₈ is 3,5-di-*t*-butyl-4 hydroxy phenyl.

84. (New) The method of Claim 83 wherein q is 1.

85. (New) The method of Claim 82 wherein said compound has the formula:



wherein

X is $-\text{CH}_2-$;

n is 1;

R_1 is H, and

R_2 is $(\text{CH}_2)_q \text{R}_{18}$;

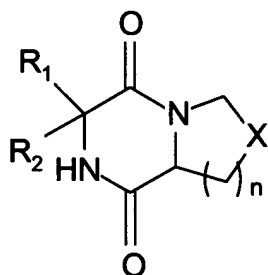
q is 0, 1, 2, 3, or 4; and

R_{18} is di-*t*-butylhydroxyphenyl.

86. (New) The method of Claim 85 wherein R_{18} is 3,5-di-*t*-butyl-4-hydroxyphenyl.

87. (New) The method of Claim 86 wherein q is 1.

88. (New) The method of Claim 23, wherein said compound has the formula:



wherein

X is $-\text{CH}_2-$;

n is 1;

R_1 is H;

R_2 is $(\text{CH}_2)_q \text{R}_{18}$,

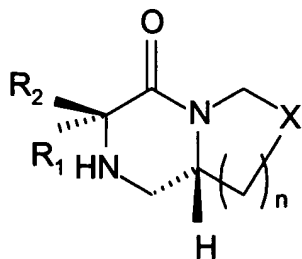
q is 0, 1, 2, 3 or ; and

R_{18} is di-*t*-butylhydroxyphenyl.

89. (New) The method of Claim 88 wherein R_{18} is 3,5-di-*t*-butyl-4-hydroxyphenyl.

90 (New) The method of Claim 89 wherein q is 1.

91. (New) The method of Claim 23 wherein said compound has the formula:



wherein

X is $-\text{CH}_2-$;

n is 1

R_1 is H and

R_2 is $(\text{CH}_2)_q \text{R}_{18}$;

q is 0, 1, 2, 3, or 4

R_{18} is di-*t*-butylhydroxy phenyl.

92. (New) The method of Claim 91 wherein R_8 is 3,5-di-*t*-butyl-4-hydroxyphenyl.

93. (New) The method of Claim 92 wherein q is 1.

94. (New) The method of Claim 75 wherein R_6 is *t*-butyl.

95. (New) The method of Claim 79 wherein R_6 is *t*-butyl.